

Appl. No. 10/657,961
Amdt. Dated June 14, 2005
Reply to Office Action of Apr. 20, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): A planar surface illuminator for use beneath a liquid crystal display panel, comprising:

a light guide plate comprising an optical input surface;

a plurality of point light sources positioned to a side of the light guide plate; and

a number of scattering dots positioned on and integrated with the optical input surface, wherein a group of at least three scattering dots, one group for each one point light source, is present for converting Gaussian beams emitted by the point light sources to light beams having a uniform light intensity across their widths, for transmitting through the optical input surface into the light guide plate.

Claim 2 (previously presented): The planar surface illuminator as described in claim 1, wherein the scattering dots protrude outwardly from the optical input surface, and have a hemispherical shape or a tetrahedral shape.

Claim 3 (previously presented): The planar surface illuminator as described in claim 2, wherein all the scattering dots have a same size.

Claim 4 (previously presented): The planar surface illuminator as described in claim 2, wherein a size distribution of scattering dots in each group of at least three scattering dots is complementary with an optical energy distribution of a Gaussian beam of the corresponding one point light source.

Claim 5 (previously presented): The planar surface illuminator as described in

Appl. No. 10/657,961

Amtdt. Dated June 14, 2005

Reply to Office Action of Apr. 20, 2005

claim 4, wherein among the group of at least three scattering dots, the nearer a given scattering dot is to its corresponding one point light source, the smaller the size of the scattering dot.

Claim 6 (previously presented): The planar surface illuminator as described in claim 1, wherein the scattering dots are formed as concave surfaces in the optical input surface, and said surfaces are hemispherical or tetrahedral in shape.

Claim 7 (previously presented): The planar surface illuminator as described in claim 6, wherein all the scattering dots have a same size.

Claim 8 (previously presented): The planar surface illuminator as described in claim 6, wherein a size distribution of scattering dots in each group of at least three scattering dots is complementary with an optical energy distribution of a Gaussian beam of the corresponding one point light source.

Claim 9 (previously presented): The planar surface illuminator as described in claim 8, wherein among the group of at least three scattering dots, the nearer a given scattering dot is to its corresponding one point light source, the smaller the size of the scattering dot.

Claim 10 (previously presented): The planar surface illuminator as described in claim 1, wherein the scattering dots are injection molded on the optical input surface.

Claim 11 (previously presented): The planar surface illuminator as described in claim 1, wherein the scattering dots are printed on the optical input surface.

Claim 12 (previously presented): The planar surface illuminator as described in claim 1, wherein the scattering dots adhere to the optical input surface.

Claim 13 (original): The planar surface illuminator as described in claim 1, wherein the point light sources are light emitting diodes.

Claim 14 (original): The planar surface illuminator as described in claim 1, further comprising a reflective film coated on a bottom surface of the light guide plate.

Appl. No. 10/657,961

Amdt. Dated June 14, 2005

Reply to Office Action of Apr. 20, 2005

Claim 15 (previously presented): The planar surface illuminator as described in claim 1, further comprising a reflective sheet covering a bottom surface of the light guide plate.

Claim 16 (previously presented): The planar surface illuminator as described in claim 1, wherein the light guide plate is substantially shaped as a rectangular plane sheet, and further comprises an optical output surface, a bottom surface, first and second side surfaces, and a third side surface opposite to the optical input surface, the bottom surface having a plurality of reflective dots thereon.

Claim 17 (previously presented): The planar surface illuminator as described in claim 16, wherein the reflective dots are uniformly spaced on the bottom surface.

Claim 18 (original): The planar surface illuminator as described in claim 1, wherein the optical light guide plate is substantially shaped as a wedge.

Claim 19 (canceled)

Claim 20 (canceled)